

AMENDMENTS TO THE CLAIMS

1.(currently amended): A receiver which demodulates an Orthogonal Frequency Division Multiplexing symbol transmitted by an Orthogonal Frequency Division Multiplexing method, comprising:

a delay profile generation unit which generates a delay profile regarding a preceding wave and a delayed wave which are included in a received signal;

a demodulation unit which demodulates said received signal so as to output a demodulated signal per sub-carrier;

a hard-decision unit which makes a hard decision per sub-carrier on a signal point based on said demodulated signal so as to output a hard-decision signal;

a replica generation unit which uses the hard-decision signal to generate a replica signal per sub-carrier; and

an inter-carrier interference suppression unit which adds a difference between said hard-decision signal and said replica signal to said demodulated signal so as to suppress an inter-carrier interference;

wherein said replica generation unit comprises:

a time-domain received signal generation unit which inverse-Fourier transforms said hard-decision signal so as to generate a received signal in time domain;

a signal component suppression unit which suppresses, by using a preceding symbol that is an already-demodulated OFDM symbol which precedes a target demodulating symbol that is a target OFDM symbol to be demodulated, a signal component of said preceding symbol which is included in said delayed wave;

a modified received signal generation unit which adds, before said target

demodulating symbol in said delayed wave, a portion of said received signal in said time domain so as to generate a modified received signal; and

a replica signal generation unit which generates said replica signal by Fourier-transforming said modified received signal.

2.(original): The receiver as claimed in claim 1, wherein said hard-decision unit is adapted to make the hard decision per sub-carrier on the signal point based on a signal in which said demodulated signal and the demodulated signal in another diversity branch are combined so as to output the hard-decision signal.

3.(currently amended): The receiver as claimed in claim 1, wherein said hard-decision unit comprises:

a decoding unit which error-correction decodes said demodulated signal;  
a decision unit which makes the hard decision per sub-carrier on an error-correction decoded signal point from said decoding unit; and  
an output unit which error-correction decodes [[the]] a hard-decision result from said decision unit so as to output said hard-decision signal.

4.(original): The receiver as claimed in claim 1, further comprising a multi-stage processing route which performs a series of processing including generation of the hard-decision signal, generation of the replica signal, and suppression of the inter-carrier interference.

5.(currently amended): The receiver as claimed in claim 1, further comprising a modified received signal generation unit which further adds a portion of a known signal which is received per predetermined number of OFDM symbols before the demodulated symbol of said delayed wave so as to generate the modified received signal.

6.(original): The receiver as claimed in claim 1, wherein said received signal is modified so as to make signal contents of a portion preceding the target demodulating symbol, which is included in the delayed wave, equal to said portion of the received signal in the time domain.

7.(currently amended): A receiver which demodulates an Orthogonal Frequency Division Multiplexing symbol transmitted by an Orthogonal Frequency Division Multiplexing method, comprising:

a delay profile generation unit which generates a delay profile regarding a preceding wave and a delayed wave which are included in a received signal;

a signal component suppression unit which suppresses, by using a preceding symbol that is an already-demodulated OFDM symbol which precedes a target demodulating symbol that is a target OFDM symbol to be demodulated, a signal component of said preceding symbol which is included in said delayed wave;

a demodulation unit which demodulates said received signal so as to output a demodulated signal per sub-carrier;

a hard-decision unit which makes a hard decision per sub-carrier on a signal point based on said demodulated signal so as to output a hard-decision signal;

a replica generation unit which uses the hard-decision signal to generate a replica signal per sub-carrier; and

an inter-carrier interference suppression unit which adds a difference between said hard-decision signal and said replica signal to said demodulated signal so as to suppress an inter-carrier interference;

wherein said replica generation unit comprises:

a time-domain received signal generation unit which inverse-Fourier transforms said hard-decision signal so as to generate a received signal in time domain;

a modified received signal generation unit which adds, before said target demodulating symbol in said delayed wave, a portion of said received signal in said time domain so as to generate a modified received signal; and

a replica signal generation unit which generates said replica signal by Fourier-transforming said modified received signal.

8.(original): The receiver as claimed in claim 7, wherein said hard-decision unit is adapted to make the hard decision per sub-carrier on the signal point based on a signal in which said demodulated signal and the demodulated signal at another diversity branch are combined so as to output the hard-decision signal.

9.(currently amended): The receiver as claimed in claim 7, wherein said hard-decision unit comprises:

a decoding unit which error-correction decodes said demodulated signal; a decision unit which makes the hard decision per sub-carrier on an error-

correction decoded signal point from said decoding unit; and

an output unit which error-correction decodes [[the]] a hard-decision result from said decision unit so as to output said hard-decision signal[[;]].

10.(original): The receiver as claimed in claim 7, further comprising a multi-stage processing route which performs a series of processing including the generation of the hard-decision signal, the generation of the replica signal, and the suppression of the inter-carrier interference.

11.(original): The receiver as claimed in claim 7, further comprising a modified received signal generation unit which further adds, before the demodulated symbol in said delayed wave, a portion of a known signal which is received per predetermined number of OFDM symbols.

12.(original): The receiver as claimed in claim 7, wherein said received signal is modified so as to make signal contents of a portion preceding the target demodulating symbol, which is included in the delayed wave, to be equal to said portion of the received signal in the time domain.